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10/064,331	07/02/2002	Ilia Greenblat	56162.000369	8291

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EXAMINER	
CHOU, ALBERT T	
ART UNIT	**PAPER NUMBER**
2616	

DATE MAILED: 04/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,331	GREENBLAT, ILIA	
	Examiner	Art Unit	
	Albert T. Chou	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 July 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8-10,13-17,19 and 20* is/are rejected.

7)☒ Claim(s) *5,7,11,12 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 14, the claim states "*the deactivated members pass messages without consuming the messages*".

- It is not clear how the deactivated ring members still can pass messages. If the ring members still can pass the message, they should not be called "deactivated" ring members.
- It is not clear where the deactivated members pass message to, if the deactivated ring members still can pass messages.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 6, 8-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,590,124 to Robins (hereinafter "Robins") in view of US Patent No. 6,662,256 to Foo and further in view of US Patent No. 4,615,029 to Hu et al. (hereinafter "Hu").

Since US Patent No. 5,504,747 (US Patent Application No. 08/026,969, filed March 3, 1993) is incorporated in Robins by reference **[Col. 12; lines 24-28]**, the examiner considers US Patent No. 5,504,747 (hereinafter "Robins-Sweazey") is formed as parts of Robins' disclosures.

Regarding claim 1, Robins-Sweazey teaches a rings-based system comprising:

a plurality of ring members on a ring that communicate using point-to-point connectivity **[Fig. 1; col. 5, lines 62-63; col. 6, lines 4-8]**; a message traversing the ring from member to member **[Fig. 1; col. 6, lines 4-8]**; the system being adapted so that upon the message arriving at a given ring member the message is processed by that ring member if the message is applicable to that ring member **[Fig. 1; col. 6, lines 17-21]**, and if the message is not applicable to that ring member, the message is passed on to the next ring member **[Fig. 1; col. 6, lines 21-25]**.

Robins-Sweazey does not expressly teach the limitation of the rings-based system on a chip or the system is adapted for a scan testing mode, in which one of the ring member is enabled for a scan output and the other ring members deactivated.

Foo teaches the limitation of ring-based system on a chip by illustrating the sequential bus forms a daisy chain, which interconnects each of the modules and forms

a ring network within an integrated circuit device **[Fig. 3, Integrated Circuit Device 30; col. 3, lines 18-20, 62-64]**.

Hu teaches a Very-Large-Scale-Integrated-Circuit (VLSIC) ring network system **[Fig. 4; col. 9, lines 11-14]** that is adapted for a test mode **[Fig. 4; the ring system can operate in the test mode; col. 9, line 26]**, in which one of the ring member is enabled for a scan output **[Fig. 4; the self-test feature enables a slave device to be put in the self-test mode. If the device is defective, a signal is output on the AT node 116 to indicate a device failure; col. 10, lines 11-16]** and the other ring members deactivated **[Fig. 4; In the test mode, the functional portion of the slave devices is isolated from the signal bus 103 such that the slave devices do not interact; col. 9, lines 26-28]**.

It would have been obvious to a person of ordinary skill in the art at the time of invention to implement the rings-based system of Robins-Sweazey with built-in test capability, as taught by Hu, within an Integrated Circuit Device 30, as taught by Foo, since each of the individual leaf nodes in Robins-Sweazey, or modules in Foo or VLSI in Hu is associated with CPU, RAM, etc. of a computer systems **[Robins-Sweazey: col. 5, lines 62-65]**.

The motivation for combining the reference teachings to form a rings-based system with built-in test capability on a chip would be to reduce the number of buses or communication links, avoid the bus contention issues among connecting modules, and allow to access the internal components for troubleshooting and failure analysis within the computer system. The motivation would have a reasonable expectation of success

since all three references teach that modules or components of a computer system are interconnected by forming in a ring for improving the information routing between on-chip modules.

Regarding claim 2, Hu teaches that the scan output is packaged into one or more messages that are transmitted by the one ring member **[Fig. 4; If any one of devices in the network is defective, a signal is output on the AT node 116 to indicate a device failure; col. 10, lines 14-16]**.

Regarding claim 3, Hu teaches that one or more messages are transmitted to a processor **[The Test/Maintenance Controller 120 can send messages and initiate self-test, i.e. operating as a supervisory role, the slave devices can only send response messages back to controller, i.e. returning the supervisory response messages; col. 17, lines 8-10]**.

Regarding claim 4, Hu teaches that the processor is a ring member operating as a supervisor that consumes supervisory response messages **[The Test/Maintenance Controller 120 can send messages and initiate self-test, i.e. operating as a supervisory role, the slave devices can only send response messages back to controller, i.e. returning the supervisory response messages; col. 17, lines 8-10]**.

Regarding claim 6, Hu teaches that a second of the ring members **[Fig. 4; Test/Maintenance Controller 120, which is one of the ring members, forms a ring**

with slave devices 96-012; col. 9, lines 11-14] comprises a processor **[Fig. 4; Test/Maintenance Controller 120 is a processor, which can send, receive and process messages; col. 10, lines 1-7]** that issues at least one message that operates to deactivate the other ring members **[The Test/Maintenance Controller 120 can send messages and initiate self-test to slave device; col. 17, lines 8-9]** and to enable the one ring member for the scan output **[When Test/Maintenance Controller 120 sends messages and initiates self-test, the slave sends response messages back to Controller 120; col. 17, lines 8-10]**.

Regarding claim 8, Hu teaches that the scan testing mode is initiated by resetting the ring network and enabling the one member for the scan mode **[The Controller 120 can send LSD message contains only a device specific command and initiate self-test to any one of slave devices; col. 17, lines 6-8]**.

Regarding claims 9, Robins-Sweazey teaches the initiation of the scan testing mode includes enumerating the ring network **[Fig. 1; During initialization of the ring, special symbols are circulated around the ring to assign node ID numbers to each node; col. 3, lines 4-13]**.

Regarding claim 10, Hu teaches that the plurality of ring members is coupled to the ring network using a plurality of ring interfaces having registers **[Fig. 2 illustrates**

each ring member comprises interfaces having Address Register 62 and Output Registers 54 & 58; col. 5, lines 56, 58 & 63].

Regarding claim 13, Hu teaches that the scan testing mode allows a user of the system to debug the system without adding additional hardware **[The Controller 120 can send messages and initiate self-test to slave devices. Since the self-test feature is built-in within VLSI, there is no additional hardware required to debug the system; col. 17, lines 8-9]**

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 15-17 and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,615,029 to Hu et al. (hereinafter "Hu").

Regarding claim 15, Hu teaches a method of scanning in a ring network having a plurality of ring members **[Fig. 4; a ring configuration with slave devices 96-102; col. 9, lines 11-17]**, comprising:

observing a defect or anomaly during normal operation of the ring network **[Figs. 1 & 4; In operation, the functional block 10 is normally in the functional mode which allows the device to receive and transmit signals; col. 4, lines 36-39]**;

issuing at least one message that causes one ring member to enter a scan output mode and other ring members to be deactivated **[Fig. 4; In the test mode, e.g. Controller 120 can initiate a self-test feature, the functional portion of the slave devices is isolated from the signal bus 103 such that slave devices do not interact; col. 9, lines 26-28]**;

resuming operation of the ring network **[Fig. 4; returning to the functional mode, e.g. stop the self-test feature, data is carried between the devices 96-102 only on the signal bus 103; col. 9, lines 23-24]**; and

outputting scan data from the one ring member onto the ring network as messages **[Fig. 4; If any one of devices in the network is defective, a signal is output on the AT node 116 to indicate a device failure; col. 10, lines 14-16]**.

Regarding claim 16, Hu teaches that at least one message comprises at least one supervisory message that configures bits in ring interfaces associated with the ring members **[The Test/Maintenance Controller 120 can send messages and initiate self-test, which is operating as a supervisory role, the slave can only send response messages back to controller, i.e. returning the supervisory response messages; col. 17, lines 8-10]**.

Regarding claim 17, Hu teaches that during the scan output mode the one ring member packages its scan output as messages **[Fig. 4; If any one of devices in the network is defective, a signal is output on the AT node 116 to indicate a device failure; col. 10, lines 14-16]** to be transmitted to a processor ring member **[Fig. 4; Test/Maintenance Controller 120]**.

Regarding claim 19, Hu teaches the step of observing takes place at a point in time during the normal operation **[Figs. 1 & 4; During the normal operation, the functional block 10 is normally in the functional mode, which allows the device to receive and transmit signals; col. 4, lines 36-39]**, and the step of resuming is carried out just prior to the point in time **[Fig. 4; e.g. once the self-test is complete, data is carried between the devices 96-102 only on the signal bus 103 as in the normal functional mode; col. 9, lines 23-24]**.

Regarding claim 20, Hu teaches the step of causing a different ring member to enter the scan output mode in order to isolate the defect or anomaly **[Fig. 4; the self-test feature enables a slave device to be put in the self-test mode. If the device is defective, a signal is output on the AT node 116 to indicate a device failure; col. 10, lines 11-16]**.

Allowable Subject Matter

5. Claims 5, 7, 11, 12 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- US Patent No. 5,444,695 to Copley et al. disclose "Token Ring Local Area Network Testing Apparatus Providing Station History Information"
- US Patent No. 6,266,797 to Godfrey et al. disclose "Data Transfer Network On A Computer Chip Using A Re-Configurable Path Multiple Ring Topology"
- US Patent No. 6,111,859 to Godfrey et al. disclose "Data Transfer Network On A Computer Chip Utilizing Combined Bus And Ring Topologies"
- US Patent No. 4,621,362 to Sy discloses "Routing Architecture For A Multi-Ring Local Area Network"

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert T. Chou whose telephone number is 571-272-6045. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Albert T. Chou
April 6, 2006 AC

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